WHAT IS CLAIMED IS:

1. A method of making a PMOS transistor structure in semiconductor material having n-type conductivity, the method comprising:

introducing fluorine into an upper surface area of the n-type semiconductor material;

forming a conductive gate electrode over the n-type semiconductor material and separated therefrom by intervening dielectric material, the conductive gate electrode having first and second sides; and

introducing p-type dopant into the n-type semiconductor material at the first and second sides of the conductive gate electrode to form a p-type source region and a p-type drain region, respectively, in the n-type semiconductor material, the p-type source and drain regions being spaced-apart to define a channel region therebetween,

whereby the channel region includes fluorine at its upper surface.

2. The method of claim 1, and wherein the step of introducing fluorine consists of implanting fluorine ions into the upper surface area of the n-type semiconductor material.

3. The method of claim 2, and wherein the step of introducing p-type dopant comprises implanting BF2 into the n-type semiconductor material.

4. The method of claim 2, and wherein the step of introducing p-type dopant comprises implanting Boron into the n-type semiconductor material.

5. The method of claim 1, and wherein the semiconductor material comprises silicon.

6. The method of claim 1, and wherein the dielectric material comprises silicon oxide.

7. The method of claim 1, and wherein the conductive gate electrode comprises polysilicon.

8. A method of making a PMOS transistor structure in semiconductor material having n-type conductivity, the method comprising:

introducing deuterium into an upper surface area of the n-type semiconductor material;

forming a conductive gate electrode over the n-type semiconductor material and separated therefrom by intervening dielectric material, the conductive gate electrode having first and second sides; and

introducing p-type dopant into the n-type semiconductor material at the first and second sides of the conductive gate electrode to form a p-type source region and a p-type drain region, respectively, in the n-type semiconductor material, the p-type source and drain regions being spaced-apart to define a channel region therebetween,

whereby the channel region includes deuterium at its upper surface.